

REMARKS

Claims 30-34 and 46-49 were pending in this application. Claims 30, 33 and 46 have been amended. New claims 58-60 have been added. Support for the claim amendments and new claims can be found in the claims as filed as well as on page 5, lines 9-28; page 7, lines 18-23 and page 20, lines 1 and 2 of the specification. Therefore claims 30-34, 46-49 and 58-60 are now pending with claims 30 and 46 being independent claims. No new matter has been added.

Interview with Examiner Richard Huston

Applicant would like to thank Examiner Huston for undertaking an interview with Applicant's representatives on March 15, 2004. During the interview the Examiner introduced the written description rejection which forms the basis for part of the Office Action to which Applicant is herewith responding. During the interview, the support for any amino acid substitution of the residues corresponding to positions 238, 440, 451, 579 and 446-451 of heparinase II was discussed. Residues of heparinase I, however, were not discussed as indicated by the Examiner. Additionally, during the interview, the Examiner inquired about the support for substitution of the residues corresponding to positions 252 and 347 of heparinase II. In response, Applicant cited to the Examiner portions of the specification for which support for these residues as well as any substitution of the residues questioned by the Examiner is provided. However, at the conclusion of the interview the Examiner indicated that he would issue a non-final Office Action so that the rejection and Applicant's arguments could be made of record.

Claim Objections

The Examiner has objected to claim 33 for reciting "claims 30". Applicant has corrected this typographical error by amending claim 33 to recite "claim 30". Applicant thanks the Examiner for bringing this error to Applicant's attention.

Rejections Under 35 U.S.C. §112

The Examiner rejected claims 30-34 and 46-49 under 35 U.S.C. §112, first paragraph for failing to comply with the written description requirement. The Examiner has argued that substitutions of residues at positions 238, 440, 451, 579 and 446-451 of heparinase II and

position 377 of heparinase I cannot encompass any amino acid substitution based on the support provided in the instant specification.

Consistent with the arguments provided during the Examiner's interview, Applicant disagrees with the Examiner's conclusion that the specification lacks support for any amino acid substitution for the residues listed above. Accordingly, Applicant respectfully traverses this rejection. Arguments in support of this traversal are set forth below.

Although Applicant respectfully traverses the rejection of the claims, in order to expedite the prosecution of this application, Applicant has amended claims 30 and 46 to recite the specific substitutions as provided in the embodiments given in the summary of the specification.

Therefore, this rejection is now moot.

The specification is directed broadly to modified heparinases. For example, on page 5, lines 10-11 a modified heparinase is described as differing from a native heparinase by including one or more amino acid substitutions, deletions or additions. From page 16, line 17 through page 17, line 1, the specification provides teachings for rationally designing modified heparinases by "modifying various residues" that are involved in enzyme activity or binding to a substrate, such as those residues listed in the claims. The specification also provides that the substitutions can be conservative or non-conservative (see pages 17-18). Further, on pages 16, 19, 20 as well as in the Examples, numerous residues that are implicated in the activity or binding of heparinase I and II are provided based on Applicant's findings, and the specification describes mutating these residues broadly prior to providing examples of specific substitutions.

Therefore, based on these teachings, it is clear that Applicant provides sufficient written description of the broad concept of modified heparinase I and II, what the modifications can be (e.g., any amino acid substitution, conservative or non-conservative) and what residues can be substituted. Based on these teachings it is not a reasonable conclusion that Applicant should be limited to particular embodiments that were provided to be examples of the genus of modified heparinase I and II.

Accordingly, withdrawal of this rejection is respectfully requested.

CONCLUSION

In view of the foregoing amendments and remarks, this application should now be in condition for allowance. A notice to this effect is respectfully requested. If the Examiner

believes, after this amendment, that the application is not in condition for allowance, the Examiner is requested to call the Applicant's representative at the telephone number listed below.

If this response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicant hereby requests any necessary extension of time. If there is a fee occasioned by this response, including an extension fee, that is not covered by an enclosed check, please charge any deficiency to Deposit Account No. 23/2825.

Respectfully submitted,
Sasisekharan et al., Applicant

By: 
Janice A. Vatland, Reg. No. 52,318
Wolf, Greenfield & Sacks, P.C.
600 Atlantic Avenue
Boston, Massachusetts 02210-2206
Telephone: (617) 646-8000

Docket No. M0656.70046US00
Date: June 9, 2004
x06/17/04x